Amendments to the Claims

The following listing of the claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A purified nucleic acid construct comprising:

a gene cassette encoding at least one modified ~~bioluminescent~~ protein selected from the group consisting of: a modified LuxA and a modified LuxB, said modified protein comprising at least one modification in its amino acid sequence relative to the sequence of ~~an unmodified~~ a wild-type form of said protein, wherein said modification comprises the addition of a peptide sequence to the protein,

and wherein the half-life of the modified protein when expressed in a cell is shorter than the half-life of the wild-type form of the protein when expressed in the cell ~~said addition reducing a first duration of bioluminescence emitted by said modified bioluminescent protein relative to a second duration of bioluminescence emitted by said unmodified form of said protein~~.

Claim 2 (currently amended): The purified nucleic acid construct of claim 1, wherein said gene cassette encodes ~~a luciferase protein~~ both modified LuxA and modified LuxB, wherein the modified LuxA comprises at least one modification in its amino acid sequence relative to the sequence of a wild-type LuxA, and wherein the modified LuxB comprises at least one modification in its amino acid sequence relative to the sequence of a wild-type LuxB.

Claim 3 (previously presented): The purified nucleic acid construct of claim 1, wherein said gene cassette encodes all proteins necessary for production of bioluminescence without addition of an exogenous substrate.

Claim 4 (currently amended): The purified nucleic acid construct of claim 3, wherein the gene cassette ~~said nucleic acid construct comprises~~ encodes ~~a lux CDABE cassette~~ LuxC, LuxD, and LuxE.

Claim 5 (canceled).

Claim 6 (currently amended): The purified nucleic acid construct of claim 1 [5], wherein the modified protein is derived ~~said Lux protein comprises the amino acid sequence of a Lux protein isolated~~ from a bacteria selected from the group consisting of: *Photorhabdus luminescens*, *Vibrio fischeri* and *Vibrio harveyi*.

Claim 7 (currently amended): The purified nucleic acid construct of claim 1, wherein the ~~modified form of said bioluminescent protein comprises a~~ peptide sequence ~~that~~ specifically binds to a protein associated with a proteolytic pathway.

Claim 8 (previously presented): The purified nucleic acid construct of claim 7, wherein said protein associated with a proteolytic pathway is a tail-specific protease.

Claim 9 (currently amended): The purified nucleic acid construct of claim 8, wherein the peptide sequence ~~of the modified bioluminescent protein~~ comprises SEQ ID NO:8.

Claim 10 (currently amended): The purified nucleic acid construct of claim 8, wherein the peptide sequence ~~of the modified bioluminescent protein~~ comprises SEQ ID NO:9.

Claim 11 (currently amended): The purified nucleic acid construct of claim 8, wherein the peptide sequence ~~of the modified bioluminescent protein~~ comprises SEQ ID NO:10.

Claim 12 (canceled).

Claim 13 (canceled).

Claim 14 (canceled).

Claim 15 (currently amended): The purified nucleic acid construct of claim 7, wherein said protein associated with a proteolytic pathway mediates degradation of said modified ~~bioluminescent~~ protein via a ubiquitin-proteasome pathway.

Claim 16 (previously presented): The purified nucleic acid construct of claim 15, wherein said protein associated with a ubiquitin-proteasome pathway is SCF(GRR1).

Claim 17 (currently amended): The purified nucleic acid construct of claim 15, wherein the peptide sequence of said modified ~~bioluminescent~~ protein comprises a PEST-rich sequence.

Claim 18 (currently amended): The purified nucleic acid construct of claim 17, wherein said PEST-rich sequence comprises a PEST-rich carboxy ~~terminus~~ terminal sequence of G1 cyclin Cln2 ~~(*Cln2*).~~

Claim 19 (currently amended): A vector comprising [[a]] the purified nucleic acid construct of claim 1 ~~comprising a gene cassette encoding at least one modified bioluminescent protein, said~~

~~modified protein comprising at least one modification in its amino acid sequence relative to the sequence of an unmodified form of said protein, said addition reducing a first duration of bioluminescence emitted by said modified bioluminescent protein relative to a second duration of bioluminescence emitted by said unmodified form of said protein~~.

Claim 20 (previously presented): The vector of claim 19, wherein said vector is a plasmid.

Claim 21 (currently amended): The vector of claim 19, wherein said vector is an expression vector suitable for ~~driving~~ expressing a nucleic acid incorporated in the vector ~~expression~~ in a cell type selected from the group consisting of: a bacterial cell, a yeast cell and a mammalian cell.

Claim 22 (previously presented): A prokaryotic cell comprising the vector of claim 19.

Claim 23 (previously presented): The prokaryotic cell of claim 22, wherein said cell is a bacterial cell.

Claim 24 (currently amended): The prokaryotic cell of claim 22, wherein said vector in said bacterial cell comprises the purified nucleic acid of claim 7 ~~or 8~~.

Claim 25 (previously presented): A eukaryotic cell comprising the vector of claim 19.

Claim 26 (previously presented): The eukaryotic cell of claim 25, wheren said cell is a yeast cell or a mammalian cell.

Claim 27 (previously presented): The eukaryotic cell of claim 25, wherein said vector in said cell comprises the purified nucleic acid of claim 15.

Claim 28 (canceled).

Claim 29 (canceled).